

TECHNICAL INFORMATION ON BUILDING MATERIALS
FOR USE IN THE DESIGN OF LOW-COST-HOUSING

TIBM-14

THE NATIONAL BUREAU OF STANDARDS
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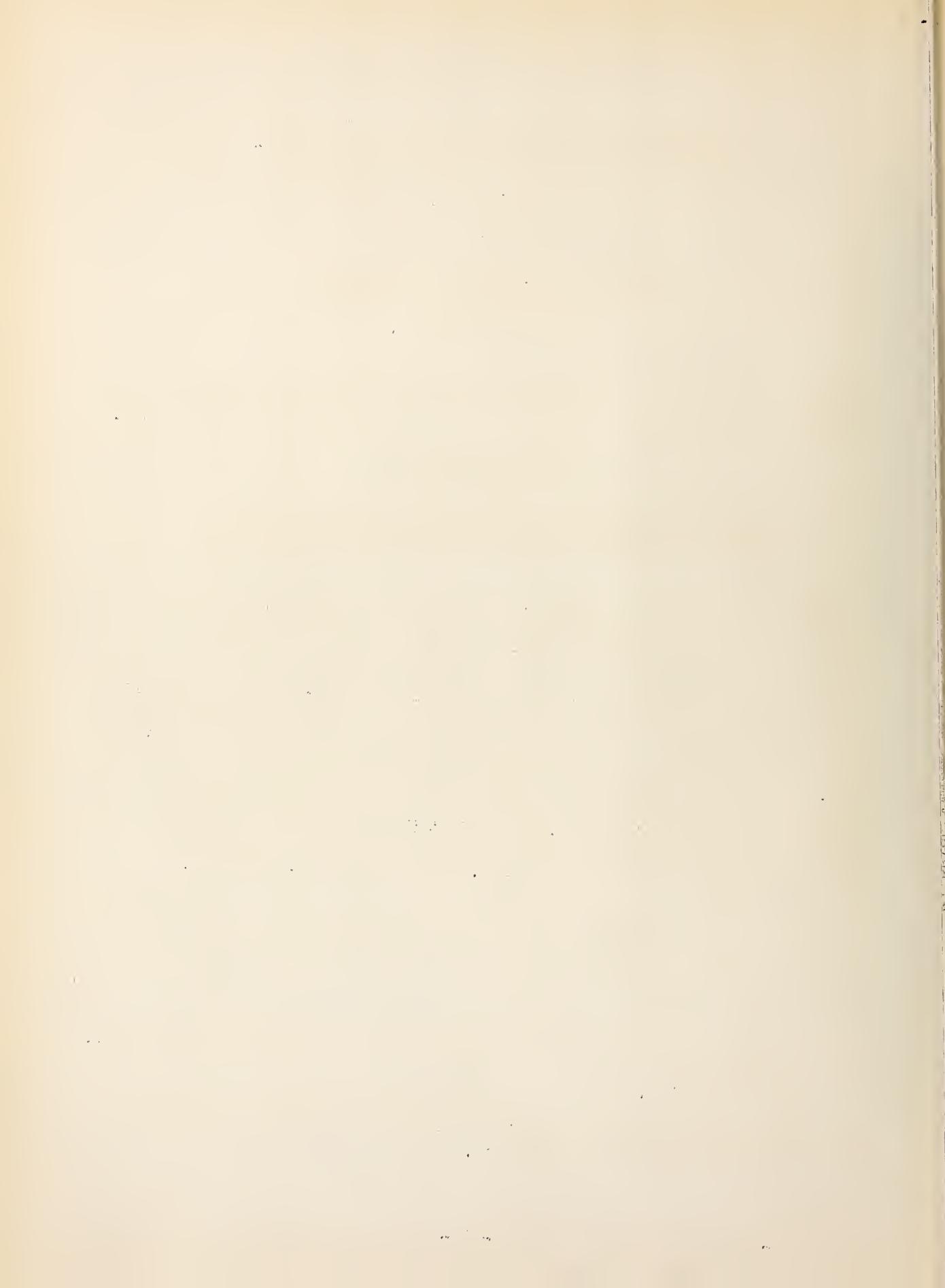
Thermal Insulation

Insulating Values for Frame Wall Construction--
4" Brick Veneer with Various Types of Interior Finishes

This is a brief presentation of calculated thermal insulating values for frame wall construction--4" brick veneer with various types of interior finishes, based on tests conducted by the National Bureau of Standards and presented in detail in former Letter Circular No. 227, "Thermal Insulation", (April 19, 1927);¹ and Bureau of Standards Research Paper No. 291, "Heat Transfer Through Building Walls", (August 6, 1930),² by M. S. Van Dusen and J. L. Finck.

¹Out of print.

²Out of print and not available by purchase but may be consulted in Government depository libraries.



COMPARATIVE INSULATING VALUES (I.V.) FOR FRAME WALL CONSTRUCTION--
4" BRICK VENEER WITH VARIOUS TYPES OF INTERIOR FILM SHEATHING

Exterior Wall Construction	Commercial	"	Interior Finishing								
Finish	Sheathing:	Type	"	"	"	"	"	"	"	"	"
4" Brick Veneer	3/4" Wood Sheathing: Building paper, 1/4" thickness	Unfilled Air Space	3 5/8 "	3.7	3.9	5.1	5.8	6.5			
		Flexible Insulation	1/2 "	5.5	5.7	6.9	7.7	8.4			
		Placed against one side;	3/4 "	6.5	6.7	7.9	8.7	9.4			
		with one air space	1 "	7.4	7.6	8.8	9.6	10.3			
			2 "	11.1	11.3	12.5	13.3	14.0			
		Rigid Insulation Board and building paper, 1/4, 1/2, 3/4, 5/8, 1" thickness	1/2 "	5.9	6.1	7.3	8.1	8.8			
			3/4 "	6.7	6.9	8.1	8.9	9.6			
			1 "	7.4	7.6	8.8	9.6	10.3			
		Flexible Insulation Centered, with 2 air spaces of equal thickness	1/2 "	6.2	6.4	7.6	8.4	9.2			
			3/4 "	7.2	7.4	8.6	9.4	10.1			
			1 "	8.1	8.3	9.5	10.3	11.1			
			2 "	11.8	12.0	13.2	14.0	14.7			
		"Fill" Insulation Flexible Insulation	3 5/8 "	15.1	15.3	16.5	17.2	18.0			
			3 5/8 "	16.0	16.2	17.4	18.1	18.9			

1. The insulating value is defined as the number of hours required for the passage of 1 Btu of heat through 1 square foot of wall area, per degree Fahrenheit temperature difference between the air on one side of the wall and the air on the other.

2If 1/2" plaster is applied to plaster board or wall board, add 0.22.
3If wood sheathing is replaced by 1/2", 3/4", or 1" rigid insulation boards, add 0.77, 1.52, or 2.28 respectively.

4If 1/2", 3/4", or 1" rigid insulation board is used with wood sheathing, add 1.52, 2.27, or 3.03 respectively.
5If 1/2", 3/4", or 1" flexible insulation is used with sheathing, add 1.85, 2.78, or 3.70 respectively.

